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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/603,980	06/27/2000	Dimitri Kanevsky	13317(YOR9-2000-0019US1)	4672

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EXAMINER	
LESPERANCE, JEAN E	

ART UNIT	PAPER NUMBER
2674	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/603,980	KANEVSKY ET AL.	
	Examiner	Art Unit	
	Jean E Lesperance	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2005* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12,14-19 and 21-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14-19 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 June 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. The Appeal brief filed May 5, 2005 is considered and claims 1-12, 14-19 and 21-24 are pending.

2. The rejection of claims 1-12, 14-19 and 21-24 under 112, first paragraph is withdrawn.

Drawings

3. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-12, 14-19 and 21-24 are rejected under 35 U. S. C. 103 (a) as being unpatentable over U.S. Patent # 5,767,842 ("Korth") in view of U.S. Patent # 6,407,679 ("Evans et al.").

As for claims1, Korth teaches a camera Fig.1 (2) corresponding to one or several cameras, a computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 27-29) corresponding to one

or more memories with CPU connected to the cameras, and processes running in the CPU that associates gesture movements with typing and window may appear only during the input of data (column 4, lines 54-55) corresponding to the produce gesture associated textual output. A virtual keyboard 3 serves as data or command input device. From the computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 25-29) corresponding to sensing the typing gestures. It is inherent in the art that the gestures are associated with the most probable keys that would be typed if the keyboard were presented. Accordingly, Korth teaches all the claimed limitations as recited in claim 1 with the exception of providing a classify groups of gestures associate each of the classes with one or more possible keys, assign a probability to each of said possible keys, and integrate the probabilities assigned to the possible keys to identify a word for a sequence of gestures.

However, Evans et al. teach (Fig. 1), where each key, or finger, would represent several different alphanumeric characters (column 2, lines 40 and 41) and a glove usable in a virtual environment where each finger has a group of letters associate with, after running through steps 400 through 1400, the system determines the most likely word is "hi" (column 8, lines 19 and 20) and matching the key words with one or more words in the dictionary, generating all possible permutations of word sequences, and selecting the most probable word sequence or partial sentence (column 83, lines 24-27) corresponding to classify each gesture into one of the plurality classes depending on the movement of the gestures and associate each of the classes with one or more possible keys, assign a probability to each of said possible keys, and integrate the

probabilities assigned to the possible keys to identify a word for a sequence of gestures. It means that each key represents a classification of several alphanumeric characters.

It would have been obvious to utilize the finger labeled as taught by Evans et al. in the user command system disclosed by Korth because this would allow the user command to match each key sequence with one or more words in the dictionary.

As for claim 2, Korth teaches a keyboard that should provide the user with the key information and feedback. Tactile feedback of virtual keyboard is given by the contact of the finger-tip with the working plate (column 7, lines 14-17) corresponding to a feedback is provided to the user on what kind of keys are associated with the user's gestures.

As for claim 3, Korth teaches a visualization of the actual key function allows the handling of keyboards with multiple shift keys and subgroup display for large characters sets (column 3, lines 1-4) corresponding to displaying keys on the display, a keyboard for musical instruments (column 3, line 11) corresponding to playing sound labels for keys and playing special sound indicators, a video sensor that is used for monitoring the keyboard to generate image data representing positions of an operator's hand with respect with the keys (column 3, lines 55-58) corresponding to displaying image indicators on the display, a camera Fig. 1 (2) corresponding to projecting the keyboard to any surface and displaying picture of the keyboard with the user's hand.

As for claim 4, Korth teaches FIG. 2 shows the area viewed by camera 2. In the observed region 4 the user's hands are detected. The enlarged section 5 of FIG. 2 represents an area of the camera's image which is chosen for further image processing

corresponding to one or more cameras, another image evaluation procedure then helps the image processor to match the virtual keyboard with the template. The place-mat may be applied on a piece of soft tissue (e.g. polyurethane foam) to reduce the strain on the finger-tips from the impact on a rigid desk plate (column 7, lines 47-52) corresponding to one or more memories with CPU connected to the cameras, and A set of simple intuitive `gestures` may be defined to control the operation of a virtual keyboard (column 6, lines 7 and 8) corresponding to processes running in the CPU that associates gesture movements with typing and produce gesture associated with textual output and a gesture capturing module that captures gestures through camera sensors, and the shape of the hands can be used to send gestures with additional information to the optical interface (column 2, lines 55 and 56) corresponding to an integrator module that integrate sequence of candidates of most probable keys into unique output key sequence.

As for claim 5, Korth teaches a method of user command or data acquisition in a processing system that allows for analysis of human hand and finger motions. The activities are then interpreted as operations on a physically non-existent input device. The resulting optical user/computer interface complements the visual screen-to-user path with a hand-to-image data acquisition link from the user to the processor unit. It allows for the emulation of different types of manually operated input devices (mouse, keyboard, etc.). Mechanical input units can be replaced by virtual devices, optimized for the current application and for the user's physiology. The speed, simplicity and avoidance of ambiguity of manual data input will be maintained. Sensing of finger

motions can generate feedback to reduce the hazard of repetitive strain injury (RSI) syndrome (abstract).

As for claim 6, Korth teaches a method of user command or data acquisition in a processing system that allows for analysis of human hand and finger motions. The activities are then interpreted as operations on a physically non-existent input device. The resulting optical user/computer interface complements the visual screen-to-user path with a hand-to-image data acquisition link from the user to the processor unit. It allows for the emulation of different types of manually operated input devices (mouse, keyboard, etc.). Mechanical input units can be replaced by virtual devices, optimized for the current application and for the user's physiology. The speed, simplicity and avoidance of ambiguity of manual data input will be maintained. Sensing of finger motions can generate feedback to reduce the hazard of repetitive strain injury (RSI) syndrome (abstract).

As for claim 7, Korth teaches a method of data input using video sensors for monitoring positions of an operator's hand with respect to keys on a virtual keyboard optically produced on a surface.

As for claim 8, Korth teaches a camera Fig.1 (2) corresponding to one or several cameras, a computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 27-29) corresponding to one or more memories with CPU connected to the cameras, and processes running in the CPU that associates gesture movements with typing and window may appear only during the input of data (column 4, lines 54-55) corresponding to the produce gesture

associated textual output. A virtual keyboard 3 serves as data or command input device. From the computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 25-29) corresponding to sensing the typing gestures. It is inherent in the art that the gestures are associated with the most probable keys that would be typed if the keyboard were presented.

As for claim 9, Korth teaches a camera Fig.1 (2) corresponding to one or several cameras, a computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 27-29) corresponding to one or more memories with CPU connected to the cameras, and processes running in the CPU that associates gesture movements with typing and window may appear only during the input of data (column 4, lines 54-55) corresponding to the produce gesture associated textual output. A virtual keyboard 3 serves as data or command input device. From the computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 25-29) corresponding to sensing the typing gestures. It is inherent in the art that the gestures are associated with the most probable keys that would be typed if the keyboard were presented.

As for claim 10, Korth teaches a camera Fig.1 (2) corresponding to one or several cameras, a computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 27-29) corresponding to one or more memories with CPU connected to the cameras, and processes running in the CPU that associates gesture movements with typing and window may appear only during the input of data (column 4, lines 54-55) corresponding to the produce gesture

associated textual output. A virtual keyboard 3 serves as data or command input device. From the computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 25-29) corresponding to sensing the typing gestures. It is inherent in the art that the gestures are associated with the most probable keys that would be typed if the keyboard were presented.

As for claim 11, Korth teaches a keyboard that should provide the user with the key information and feedback. Tactile feedback of virtual keyboard is given by the contact of the finger-tip with the working plate (column 7, lines 14-17) corresponding to a feedback is provided to the user on what kind of keys are associated with the user's gestures.

As for claim 12, Korth teaches a visualization of the actual key function allows the handling of keyboards with multiple shift keys and subgroup display for large characters sets (column 3, lines 1-4) corresponding to displaying keys on the display, a keyboard for musical instruments (column 3, line 11) corresponding to playing sound labels for keys and playing special sound indicators, a video sensor that is used for monitoring the keyboard to generate image data representing positions of an operator's hand with respect with the keys (column 3, lines 55-58) corresponding to displaying image indicators on the display, a camera Fig. 1 (2) corresponding to projecting the keyboard to any surface and displaying picture of the keyboard with the user's hand.

As for claim 14, Korth teaches a camera Fig.1 (2) corresponding to one or several cameras, a computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 27-29) corresponding to

one or more memories with CPU connected to the cameras, and processes running in the CPU that associates gesture movements with typing and window may appear only during the input of data (column 4, lines 54-55) corresponding to the produce gesture associated textual output. A virtual keyboard 3 serves as data or command input device. From the computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 25-29) corresponding to sensing the typing gestures. It is inherent in the art that the gestures are associated with the most probable keys that would be typed if the keyboard were presented.

As for claim 15, Korth teaches a set of simple intuitive `gestures` may be defined to control the operation of a virtual keyboard (column 6, lines 7 and 8) corresponding to means for associating gesture classes with individual typing keys.

As for claim 16, Evans et al. teach the process loops back to select another word. This process continues until all the words have been placed in the data structure (column 4, lines 62-64) corresponding to providing training data in words or sentences with certain timing data.

As for claim 17, Korth teaches a camera Fig.1 (2) corresponding to one or several cameras, a computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 27-29) corresponding to one or more memories with CPU connected to the cameras, and processes running in the CPU that associates gesture movements with typing and window may appear only during the input of data (column 4, lines 54-55) corresponding to the produce gesture associated textual output. A virtual keyboard 3 serves as data or command input device.

From the computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 25-29) corresponding to sensing the typing gestures. It is inherent in the art that the gestures are associated with the most probable keys that would be typed if the keyboard were presented.

As for claim 18, Korth teaches a keyboard that should provide the user with the key information and feedback. Tactile feedback of virtual keyboard is given by the contact of the finger-tip with the working plate (column 7, lines 14-17) corresponding to a feedback is provided to the user on what kind of keys are associated with the user's gestures.

As for claim 19, Korth teaches a keyboard that should provide the user with the key information and feedback. Tactile feedback of virtual keyboard is given by the contact of the finger-tip with the working plate (column 7, lines 14-17) corresponding to a feedback is provided to the user on what kind of keys are associated with the user's gestures.

As for claim 21, Korth teaches a camera Fig.1 (2) corresponding to one or several cameras, a computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 27-29) corresponding to one or more memories with CPU connected to the cameras, and processes running in the CPU that associates gesture movements with typing and window may appear only during the input of data (column 4, lines 54-55) corresponding to the produce gesture associated textual output. A virtual keyboard 3 serves as data or command input device. From the computer side of the interface there need only be a way to detect the fingertip

motions of the keyboard operator (column 4, lines 25-29) corresponding to sensing the typing gestures. It is inherent in the art that the gestures are associated with the most probable keys that would be typed if the keyboard were presented.

As for claim 22, Korth teaches a camera Fig.1 (2) corresponding to one or several cameras, a computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 27-29) corresponding to one or more memories with CPU connected to the cameras, and processes running in the CPU that associates gesture movements with typing and window may appear only during the input of data (column 4, lines 54-55) corresponding to the produce gesture associated textual output. A virtual keyboard 3 serves as data or command input device. From the computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 25-29) corresponding to sensing the typing gestures. It is inherent in the art that the gestures are associated with the most probable keys that would be typed if the keyboard were presented.

As for claim 23, Korth teaches a camera Fig.1 (2) corresponding to one or several cameras, a computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 27-29) corresponding to one or more memories with CPU connected to the cameras, and processes running in the CPU that associates gesture movements with typing and window may appear only during the input of data (column 4, lines 54-55) corresponding to the produce gesture associated textual output. A virtual keyboard 3 serves as data or command input device. From the computer side of the interface there need only be a way to detect the fingertip

motions of the keyboard operator (column 4, lines 25-29) corresponding to sensing the typing gestures. It is inherent in the art that the gestures are associated with the most probable keys that would be typed if the keyboard were presented.

As for claim 24, Korth teaches a camera Fig.1 (2) corresponding to one or several cameras, a computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 27-29) corresponding to one or more memories with CPU connected to the cameras, and processes running in the CPU that associates gesture movements with typing and window may appear only during the input of data (column 4, lines 54-55) corresponding to the produce gesture associated textual output. A virtual keyboard 3 serves as data or command input device. From the computer side of the interface there need only be a way to detect the fingertip motions of the keyboard operator (column 4, lines 25-29) corresponding to sensing the typing gestures. It is inherent in the art that the gestures are associated with the most probable keys that would be typed if the keyboard were presented.

Response to Amendment

Applicant's arguments filed May 5, 2005 have been fully considered but they are not persuasive. Applicant's representative argued that the prior art, Korth, does not teach a invisible virtual keyboard. Examiner disagrees with the applicant because the prior art, Korth teaches in the abstract "The activities are then interpreted as operations on a physically non-existent input device" and the keyboard needs not to exist physically (column 4, line 25) corresponding to a invisible virtual keyboard. The

applicant argued that the prior art, Evans et al., does not teach "the computer processes, those finger movements are transformed into text and classify the finger gestures into classes, and associate each of these classes with one of the keys of the keyboard". Examiner disagrees with the applicant because even if the prior art does not teach word for word the limitation claimed but the concept is inherently there. The prior art teaches whereby each key, or finger, would represent several different alphanumeric characters (column 2, lines 40 and 41) where the examiner is interpreted in Fig.1 as each key or finger represents different classes of gestures. And it says again further down in the prior art that the left-hand ring finger, for example, could represent "s", "v", and "x", the right-hand index finger could represent "j", "u," "y", "h" and "n", and so on for each finger (column 2, lines 43-46) where the left-hand ring finger represents a class of gestures and the right-hand index finger represents another class of gestures. The applicant argued that the prior art does not teach "each word is identified on the basis of the probabilities assigned to the possible keys assigned to the gesture classes that make up that word" but examiner does not agree with the applicant because the prior art, Evans et al., teaches after running through steps 400 through 1400, the system determines the most likely word is "hi" (column 8, lines 19 and 20) and matching the key words with one or more words in the dictionary, generating all possible permutations of word sequences, and selecting the most probable word sequence or partial sentence (column 83, lines 24-27) corresponding to "each word is identified on the basis of the probabilities assigned to the possible keys assigned to the gesture classes that make up that word". The claims have been amended but not enough to differentiate over the

prior art. They need to be further amended to overcome the prior art of record. Therefore, the rejection is maintained as was rejected in the previous office action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jean Lesperance whose telephone number is (571) 272-7692. The examiner can normally be reached on from Monday to Friday between 10:OOAM and 6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Edouard, can be reached on (571) 272-7603.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Jean Lesperance

Art unit 2674

HENRY N. TRAN
PRIMARY EXAMINER